



# Description of a Pharmacist-Managed Penicillin Allergy Skin Testing (PAST) Service at a Community Teaching Hospital

Nicholas P. Torney Pharm.D., BCPS, Michael D. Tiberg, Pharm.D., BCPS (AQ-ID)

## Background

- 15 – 25%** Patients at Munson Medical Center reporting an allergy to penicillin or amoxicillin
- ≤ 10%** Patients reporting an allergy to penicillin with a positive PAST (Historical data)
- 1.69 [1.51 – 1.90]** Adjusted HR for new MRSA infection in patients with reported penicillin allergies
- 1.26 [1.12 – 1.40]** Adjusted HR for new *C. diff* infection in patients with reported penicillin allergies
- 97 – 99%** PAST negative predictive value
- ~ 50%** PAST positive predictive value
- 1 – 2 hours** PAST time requirement
- \$120** Product cost of 1 PAST

## Methods

- Pharmacist-managed inpatient PAST service at Munson Medical Center in Traverse City, MI.
- Data collected from October 2015 – September 2018
- PAST is a two step process, previously described<sup>4</sup>:
  - Scratch Test (4 reagents)
  - Intradermal Test (3 reagents)

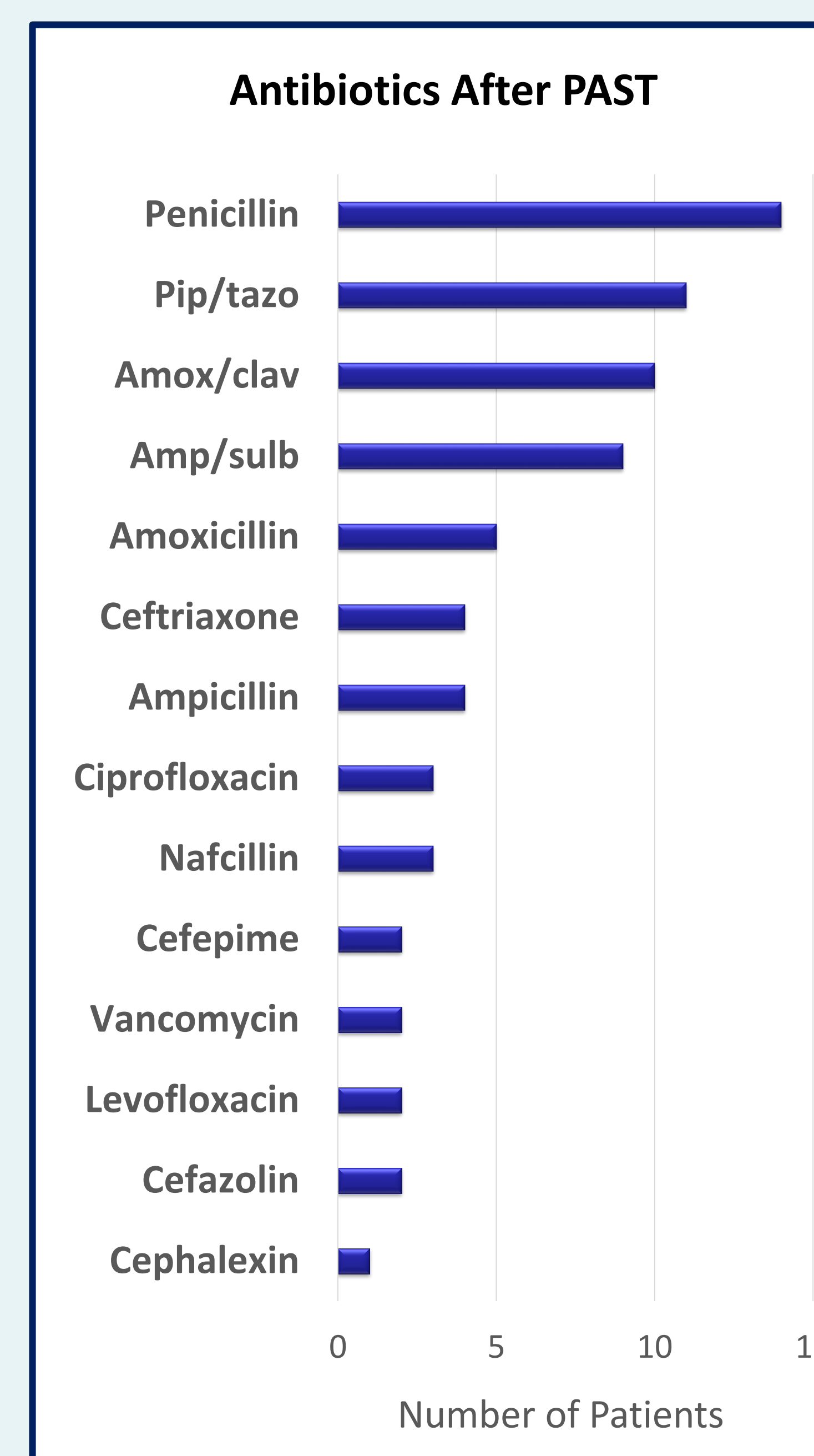
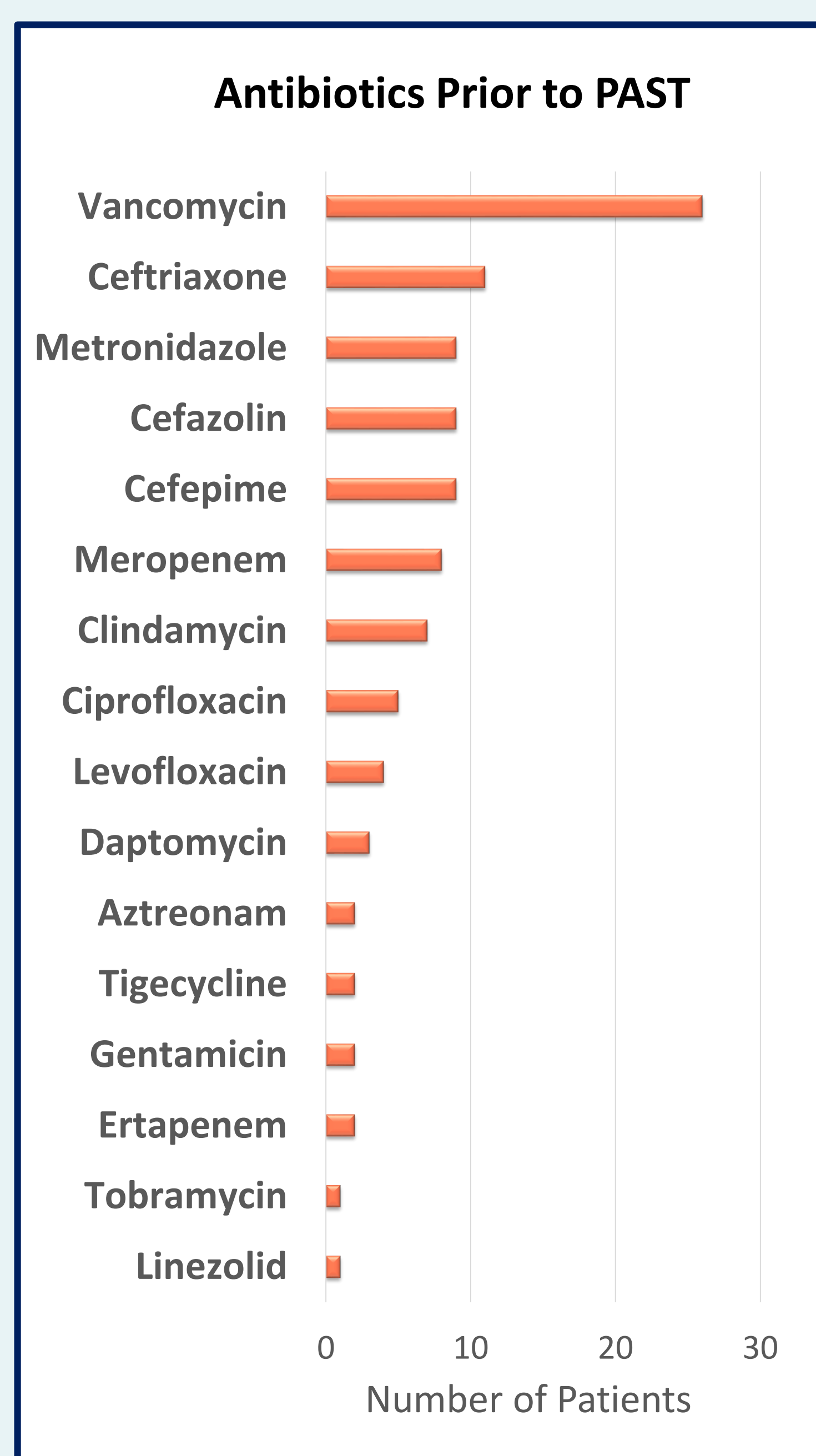
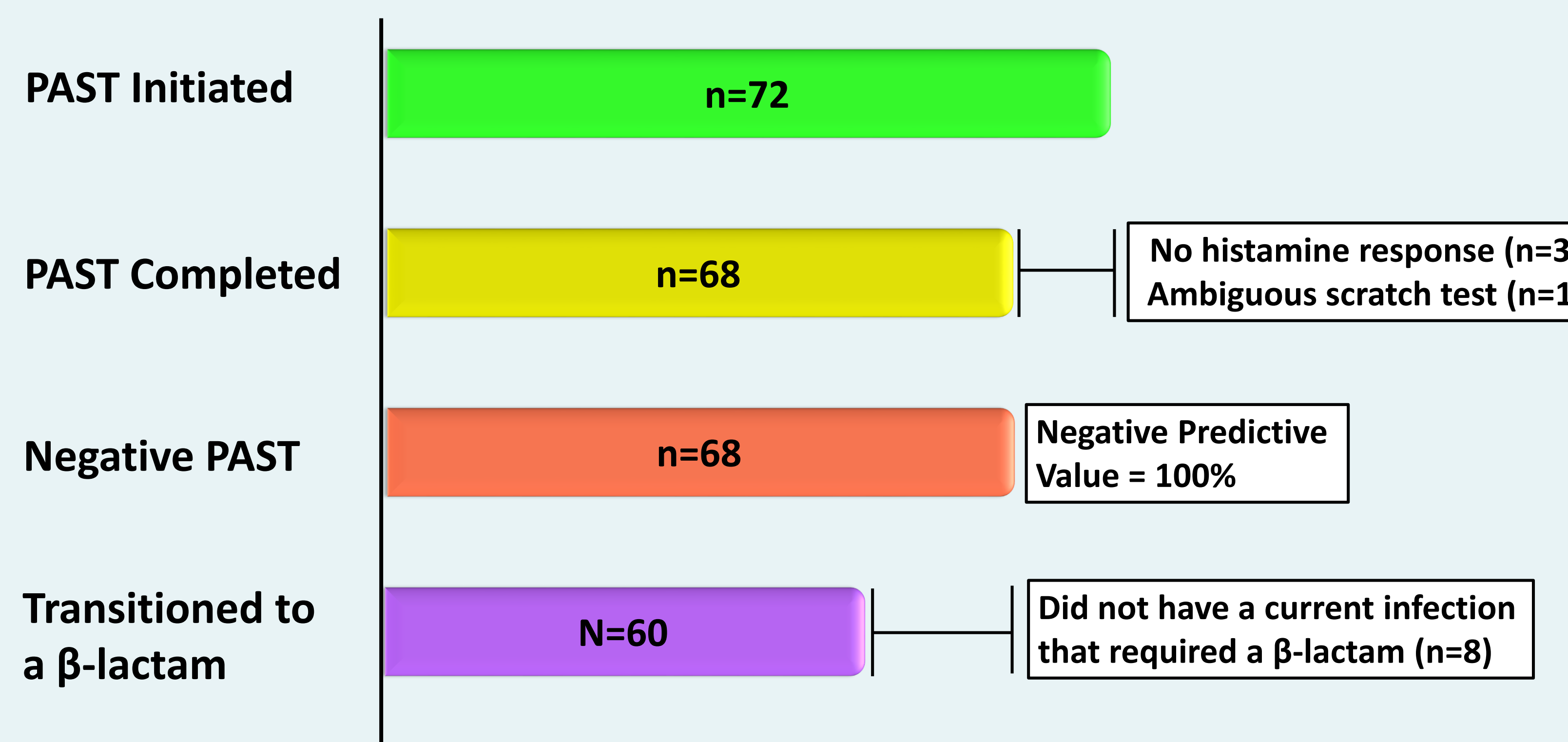
### Inclusion Criteria

- Patient is ≥18 years old
- Reported allergy to any penicillin antibiotic
- Patient verbally consents to this procedure

### Exclusion Criteria

- Type 1 reaction to a penicillin antibiotic within the last 5 years
- Patient is pregnant or nursing
- Patient has taken a first generation H1 receptor antagonist in the past 24 hours, OR a second generation H1 receptor antagonist in the past 5 days
- Patient reports a hypersensitivity reaction other than a Type 1 reaction (hemolytic anemia, interstitial nephritis, Stevens-Johnson syndrome, etc)
- Patient has an intolerance to the antibiotic, not a true allergy

## Results



| Days of alternative antibiotic avoided | Days |
|--|------|
| Total                                  | 1327 |
| Average per patient                    | 19.8 |
| Median per patient                     | 11   |

| Patient Characteristics* | N (%)      |
|--------------------------|------------|
| Average age              | 61.7 years |
| Age Range                | 25 – 91    |
| Gender                   |            |
| Male                     | 24 (35)    |
| Female                   | 44 (65)    |
| Hospital Location        |            |
| General Medical          | 58 (85)    |
| ICU                      | 10 (15)    |
| Reported Allergy History |            |
| Hives/urticaria          | 21 (31)    |
| Rash                     | 13 (19)    |
| Swelling                 | 9 (13)     |
| Unknown                  | 8 (12)     |
| Anaphylaxis              | 8 (12)     |
| Bronchospasm             | 5 (7)      |
| Angioedema               | 2 (3)      |
| Itching                  | 2 (3)      |
| Years Since Reaction     |            |
| > 20                     | 55 (81)    |
| 10 – 20                  | 10 (15)    |
| 5 – 10                   | 3 (4)      |

| Patient Characteristics*    | N (%)   |
|-----------------------------|---------|
| <b>Infectious Process</b>   |         |
| Bacteremia                  | 14 (21) |
| Skin and soft tissue        | 14 (21) |
| Bone/Joint                  | 9 (13)  |
| Intra-abdominal             | 8 (12)  |
| Dental abscess              | 7 (10)  |
| Pneumonia                   | 6 (9)   |
| Urinary tract infection     | 5 (7)   |
| Endocarditis                | 2 (3)   |
| Neutropenic fever           | 2 (3)   |
| Empyema                     | 1 (1)   |
| <b>Bacteria Isolated</b>    |         |
| Enterococcus sp.            | 21 (21) |
| None                        | 19 (19) |
| Streptococcus sp.           | 17 (17) |
| Enterobacteriaceae          | 13 (13) |
| Gram (-) aerobes            | 9 (9)   |
| Gram (+) aerobes            | 7 (7)   |
| MSSA                        | 5 (5)   |
| Other Staphylococcus sp.    | 4 (4)   |
| CoNS                        | 2 (2)   |
| Other aerobic Gram (-) rods | 2 (2)   |
| P. aeruginosa               | 1 (1)   |

\*Table includes all patients that completed PAST (n=68)

## Conclusion

- Incorporating a pharmacist-managed PAST service into a community hospital's antimicrobial stewardship program can improve the utilization of preferred antimicrobial therapy and avoid toxic, more costly antimicrobials.

## References

- Joint Task Force on Practice Parameters; American Academy of Allergy, Asthma and Immunology; American College of Allergy, Asthma and Immunology; Joint Council of Allergy, Asthma and Immunology. Drug allergy: an updated practice parameter. *Ann Allergy Asthma Immunol.* 2010 Oct;105(4):259-273.
- Blumenthal KG, Lu N, Zhang Y, Li Y, Walensky RP, Choi HK. Risk of methicillin resistant *Staphylococcus aureus* and *Clostridium difficile* in patients with a documented penicillin allergy: population based matched cohort study. *BMJ.* 2018 Jun 27;361
- Sogn DD, Evans R III, Shepherd GM, et al. Results of the National Institute of Allergy and Infectious Diseases Collaborative Clinical Trial to test the predictive value of skin testing with major and minor penicillin derivatives in hospitalized adults. *Arch Intern Med.* 1992;152:1025e1032.
- Wall GC, Peters L, et al. Pharmacist-managed service providing penicillin allergy skin tests. *Am J Health Syst Pharm.* 2004; 61:1271-5

## Disclosures

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation:  
**Nicholas P. Torney:** Recipient of an educational and travel grant from ALK pharmaceuticals  
**Michael D. Tiberg:** Nothing to disclose